Hydro Electronic Devices, Inc.

Pre

Composer Tuner™
USER'S MANUAL

Preliminary

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®

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1.0 Introduction

Orchestra's Tuner™ enables a user to create step-by-step instructions for vehicle setup, calibration, trouble shooting, etc. Multiple Processes may be created in Composer and then executed using Tuner. When running Tuner, the user will connect to the CANLink Master module, similar to Conductor. Instead of displaying all the Data Item values like Conductor, Tuner will display instructions, images and possibly some values that are currently required for the Action the user is trying to complete.

2.0 Dongles

To create/edit the Tuner Processes in Composer a HED® Blue Dongle (Part Number: CL-012-300 or CL-012-304) or HED Red Dongle (Part Number: CL-012-302) is required. The Blue Dongle gives access to all of the standard Composer features (Data Items, Modules, and Rungs) where as the Red Dongle only gives access to the Tuner Processes. Any of the Dongles may be used to run Tuner but when creating the Processes in Composer the user can set different levels so only certain level of end users can execute/bypass certain Processes.

3.0 General Information

Tuner is designed with 3 levels of logic Processes (groups of Steps), Steps (groups of Actions), and Actions.

Throughout this manual, the following definitions apply:

- User = person using the Tuner functionality of the Composer.
- End User = person using the Tuner stand-alone application (Ex: tester, production, service department, etc…).

18 different Actions (all Actions have option to display an Image)

- Instruction
    a. Displays the text.
- Blind Step
    a. This Action is completed without any end user interaction (besides clicking "next" button).
    b. This Step can be used to set EEPROMS and/or Timers without the end user knowing about it.
    c. It sets the "Data Item Set" to the "Value Set"
- Capture Data Item MIN
    a. This Action is used to keep track of the Minimum value seen in the Watched Data Item during the Action.
    b. It sets the "Data Item Set" to the value of "Data Item Watch" upon clicking the "next" button.
- Capture Data Item MAX
    a. This Action is used to keep track of the Maximum value seen in the Watched Data Item during the Action.
    b. It sets the "Data Item Set" to the value of "Data Item Watch" upon clicking the "next" button
- Capture Set point – No Control
    a. This Action is used to keep track of the value seen in the Watched Data Item during the action.
    b. It sets the "Data Item Set" to the value of "Data Item Watch" upon clicking the "next" button
- Capture Set point – With Control
    a. This Action is used to keep track of the value seen in the Watched Data Item during the action. During this Action, the end user is able to control the value of the "Data Item Debug".
    b. It sets the "Data Item Set" to the value of "Data Item Watch" upon clicking the "next" button.
- Set Option
    a. This Action is used to allow the end user to select multiple (AND) or a single (OR) option
    b. It sets the "Data Item Set" to the binary value of selected options upon clicking the "next" button.
- Set Preference
    a. This Action is used to allow the end user to select a value to set for this action using the user interface given.
    b. It sets the "Data Item Set" to the value of control used in the user interface upon clicking the "next" button.
- Watch/Display Value
    a. This Action is used to keep track of the value seen in the Watched Data Item during the Action.
    b. It displays the "Data Item Display" to the screen.
    c. The Action ends, upon clicking the "next" button.

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- Control Data Item
    a. During this Action, the end user is able to control the value of the "Data Item Debug".
    b. There is no "Set" for this Action.
    c. The control and Action ends, upon clicking the "next" button.
- Equal
    a. This Action is used to compare the value seen in the Watched Data Item to the value seen in the Displayed Data Item during the Action.
    b. There is no "Set" for this Action.
    c. Upon clicking the "next" button, if the compare is True the Action passes. If the compare is False, the Action fails.
- Not Equal To
    a. This Action is used to compare the value seen in the Watched Data Item to the value seen in the Displayed Data Item during the Action.
    b. There is no "Set" for this Action.
    c. Upon clicking the "next" button, if the compare is True the Action passes. If the compare is False, the Action fails.
- Less Than
    a. This Action is used to compare the value seen in the Watched Data Item to the value seen in the Displayed Data Item during the Action.
    b. There is no "Set" for this Action
    c. Upon clicking the "next" button, if the compare is True the Action passes. If the compare is False, the Action fails
- Less Than or Equal To
    a. This Action is used to compare the value seen in the Watched Data Item to the value seen in the Displayed Data Item during the Action.
    b. There is no "Set" for this Action.
    c. Upon clicking the "next" button, if the compare is True the Action passes. If the compare is False, the Action fails
- Greater Than
    a. This Action is used to compare the value seen in the Watched Data Item to the value seen in the Displayed Data Item during the Action.
    b. There is no "Set" for this Action.
    c. Upon clicking the "next" button, if the compare is True the Action passes. If the compare is False, the Action fails
- Greater Than or Equal To
    a. This Action is used to compare the value seen in the Watched Data Item to the value seen in the Displayed Data Item during the Action.
    b. There is no "Set" for this Action.
    c. Upon clicking the "next" button, if the compare is True the Action passes. If the compare is False, the Action fails
- Save EEPROMS and Timers
    a. This Action is used to save all the changes made to the "Set" EEPROM and Timer values that occurred during a Process, Step and/or Action.
    b. There is no "Set" for this Action.
- Reset System
    a. This Action is used to reset the system and hence put the system into a know state of reset
    b. There is no "Set" for this Action.

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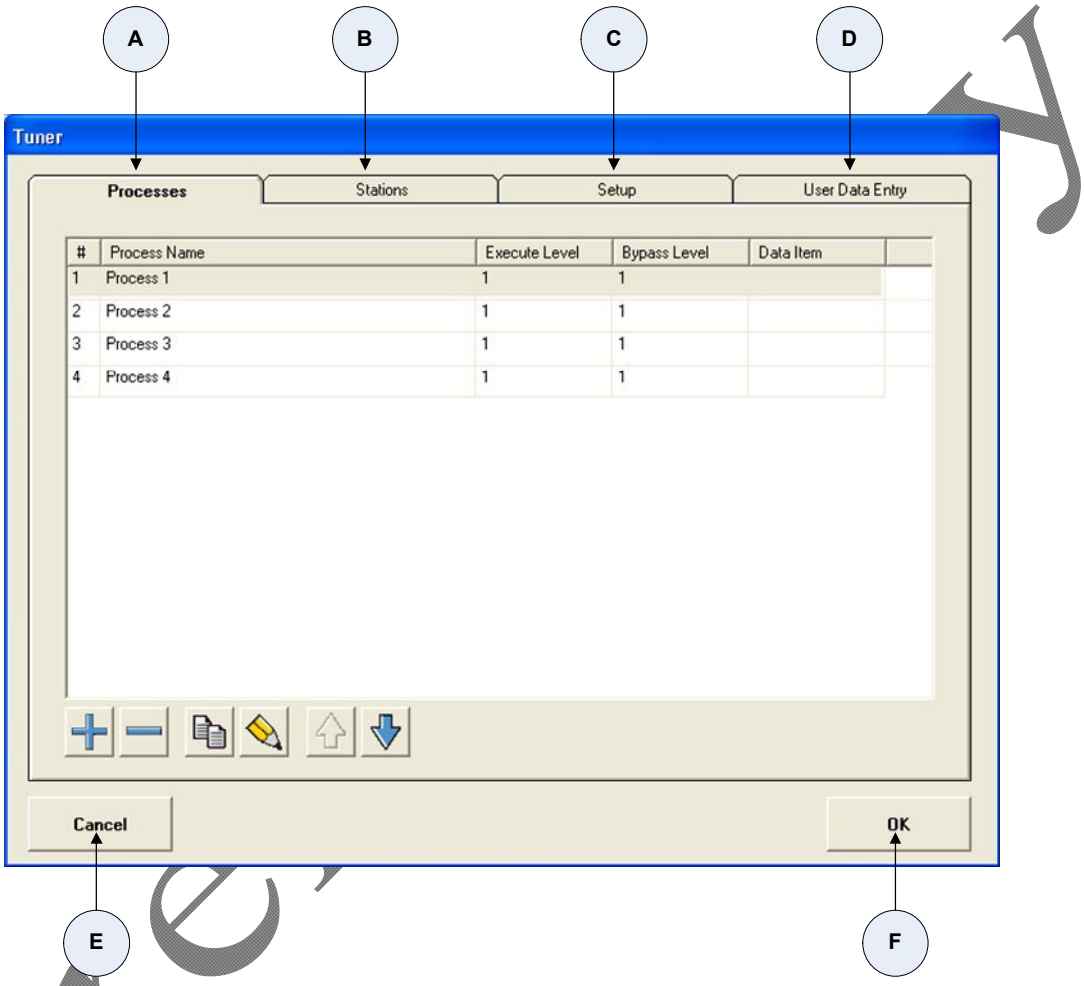
4.0 Tuner Composer Windows

To start editing/creating Tuner Processes, open Composer and press the icon or under the "options" menu – click "Edit Tuner Application" This will bring up the following screen:



Main tabs and controls:

A) Processes – Create/Edit the different Processes that Tuner can execute.
B) Station Files – Create files for different stations so Tuner will only execute selected Processes for that particular Station.
C) Setup – Set the default password and set the file name and storing location of the Tuner's results file.
D) User Data Entry – Create the prompts the end user will be asked to fill in when first connecting to a module
E) Cancel Button – Pressing this button at any time will exit the Tuner window and any changes made since the window was opened will be lost.
F) OK Button - Pressing this button at any time will exit the Tuner window and store any changes made since the window was opened. To permanently save the changes the save button will need to be pressed.

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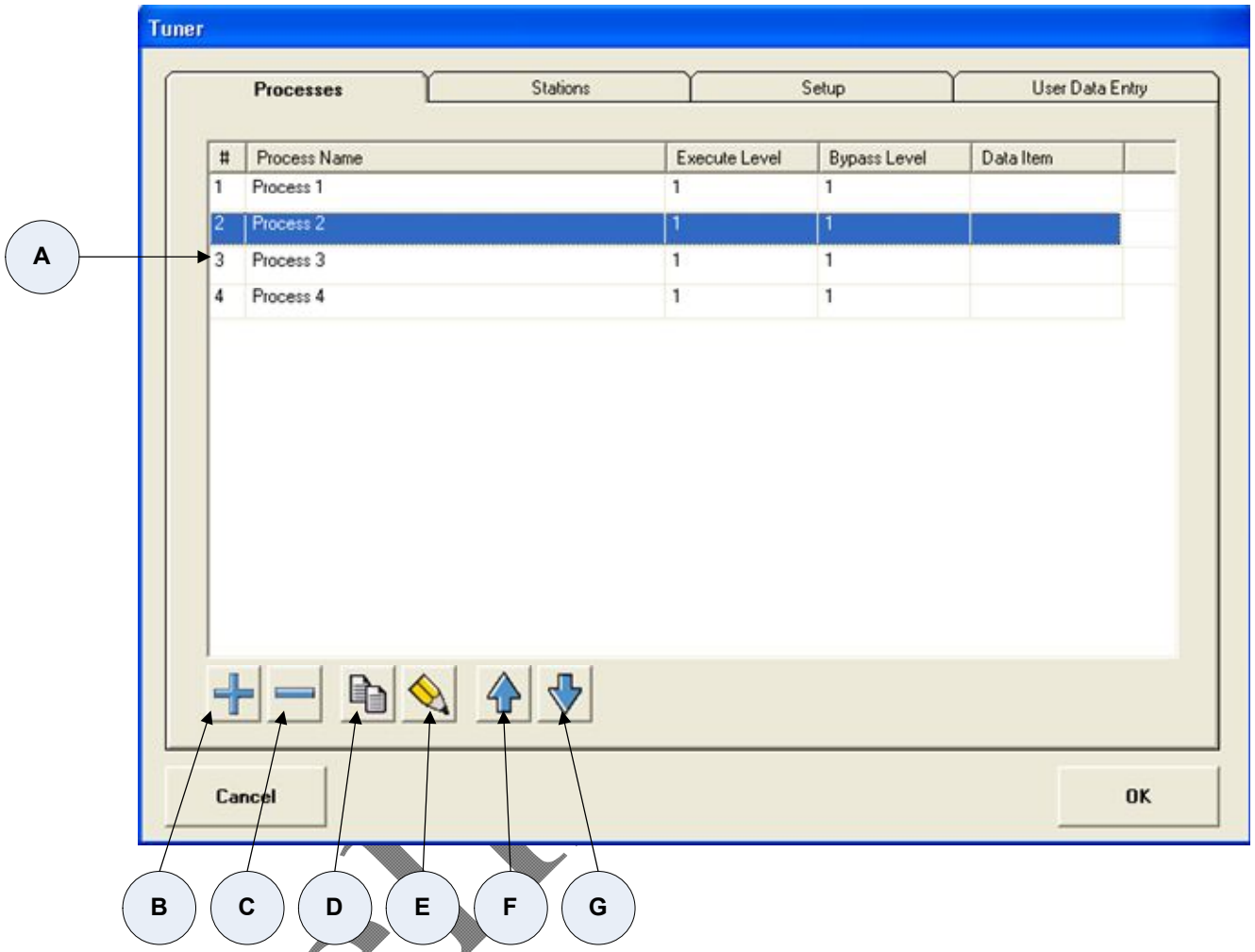
4.1 Processes Tab



A) This window lists all of the Processes that have been created. Clicking on a line highlights it so it can be deleted or moved up or down. Double clicking will allow the user to edit the Process.
B) Pressing this button will create a new Process by bringing up the edit window to edit the newly created Process.
C) Pressing this button will delete the currently selected Process.
D) Pressing this button will make a copy of the currently selected Process and will bring up the edit window to edit the newly copied Process.
E) Pressing this button will bring up the edit window for the currently selected Process.
F) Pressing this button will move the currently selected Process up 1 spot.
G) Pressing this button will move the currently selected Process down 1 spot.

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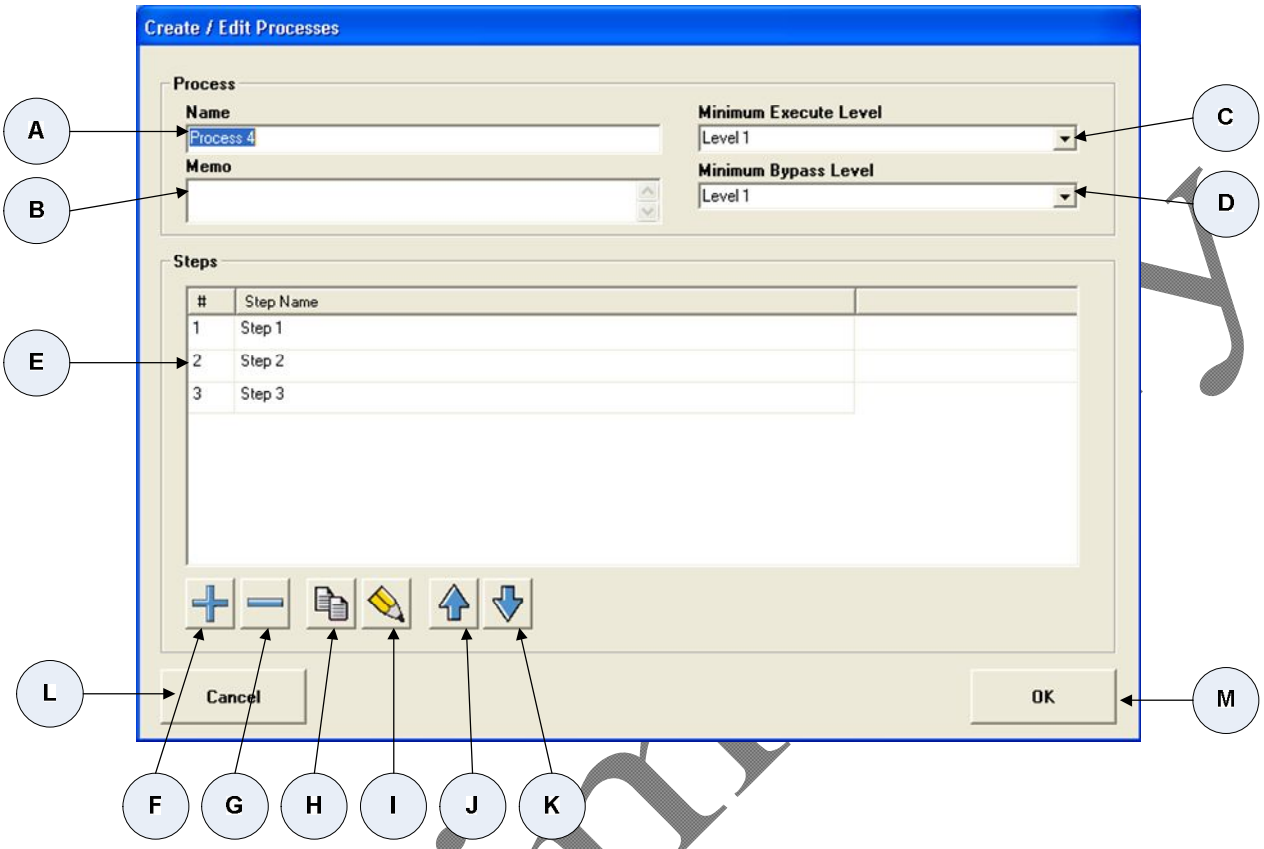
4.2 Create / Edit Processes



A) Enter the name of the Process
B) Enter a memo for the Process (Optional).
C) Minimum Execute Level – This sets what level Dongle and password combination needs to be used to execute this Process.
    a. Example: If Level 2 is selected – only Level 1 and Level 2 are allowed to execute this Process.
D) Minimum Bypass Level – This sets what level Dongle and password combination needs to be used to be given the option to bypass this Process.
    a. Example: If Level 3 is selected – Level 1, Level 2 and Level 3 are given the option to bypass this Process.
E) This window lists all the Steps that have been created for this Process. Clicking on a line highlights it so it can be deleted or moved up or down. Double clicking will allow the user to edit the Step
F) Pressing this button will create a new Step by bringing up the edit window to edit the newly created Step
G) Pressing this button will delete the currently selected Step.
H) Pressing this button will make a copy of the currently selected Step and will bring up the edit window to edit the newly copied Step.
I) Pressing this button will bring up the edit window for the currently selected Step.
J) Pressing this button will move the currently selected Step up 1 spot.
K) Pressing this button will move the currently selected Step down 1 spot.
L) Cancel Button – Pressing this button at any time will exit the "Create / Edit Processes" window and any changes made since the window was opened will be lost
M) OK Button - Pressing this button at any time will exit the "Create / Edit Processes" window and store any changes made since the window was opened. To permanently save the changes the save buttor will need to be pressed

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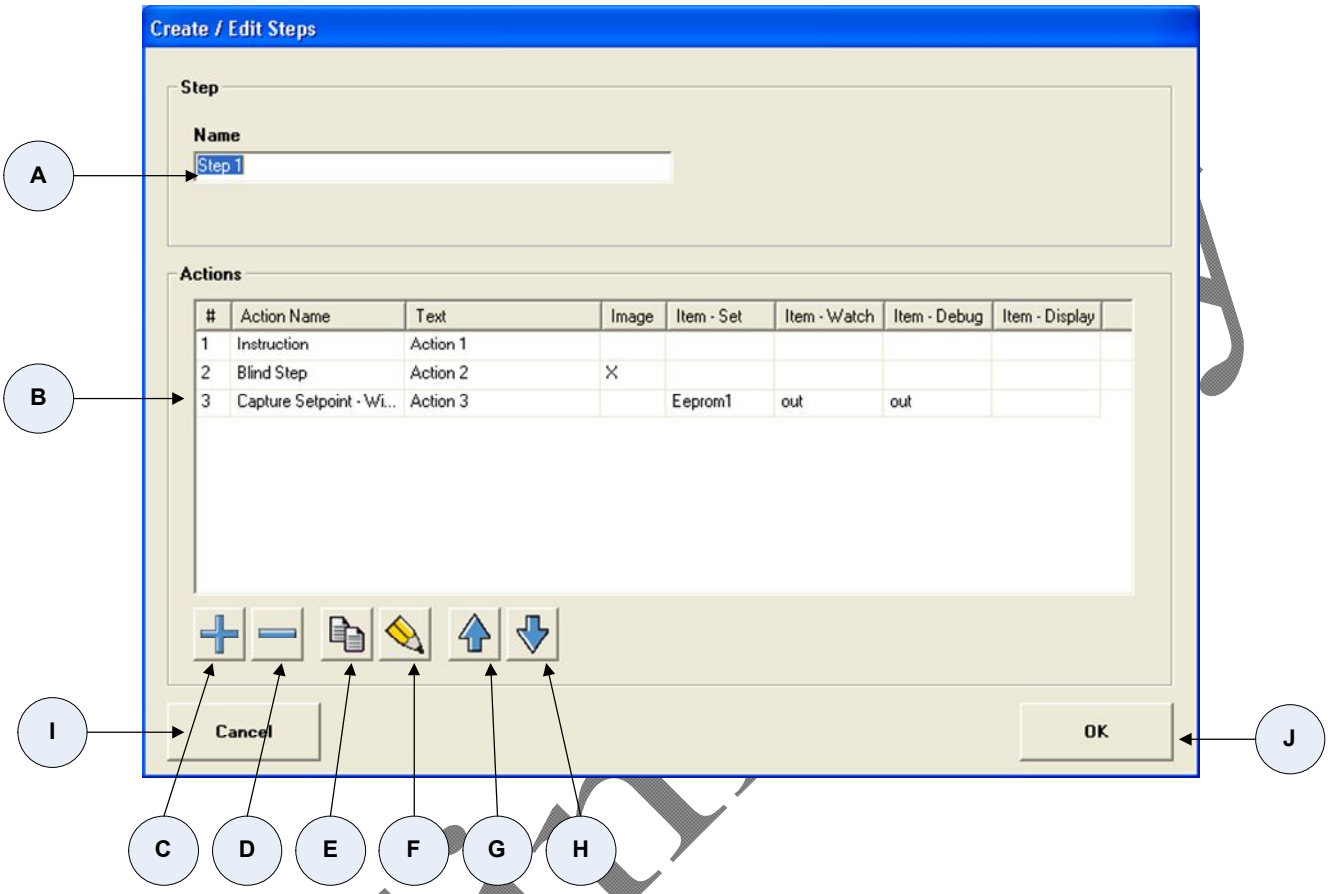
4.3 Create / Edit Steps



A) Enter the name of the Step
B) This window lists all the Actions that have been created for this Step. Clicking on a line highlights it so it can be deleted or moved up or down. Double clicking will allow the user to edit the Action.
C) Pressing this button will create a new Action by bringing up the edit window to edit the newly created Action
D) Pressing this button will delete the currently selected Action.
E) Pressing this button will make a copy of the currently selected Action and will bring up the edit window to edit the newly copied Action.
F) Pressing this button will bring up the edit window for the currently selected Action.
G) Pressing this button will move the currently selected Action up 1 spot.
H) Pressing this button will move the currently selected Action down 1 spot.
I) Cancel Button – Pressing this button at any time will exit the "Create / Edit Steps" window and any changes made since the window was opened will be lost.
J) OK Button - Pressing this button at any time will exit the "Create / Edit Steps" window and store any changes made since the window was opened. To permanently save the changes the save button will need to be pressed.

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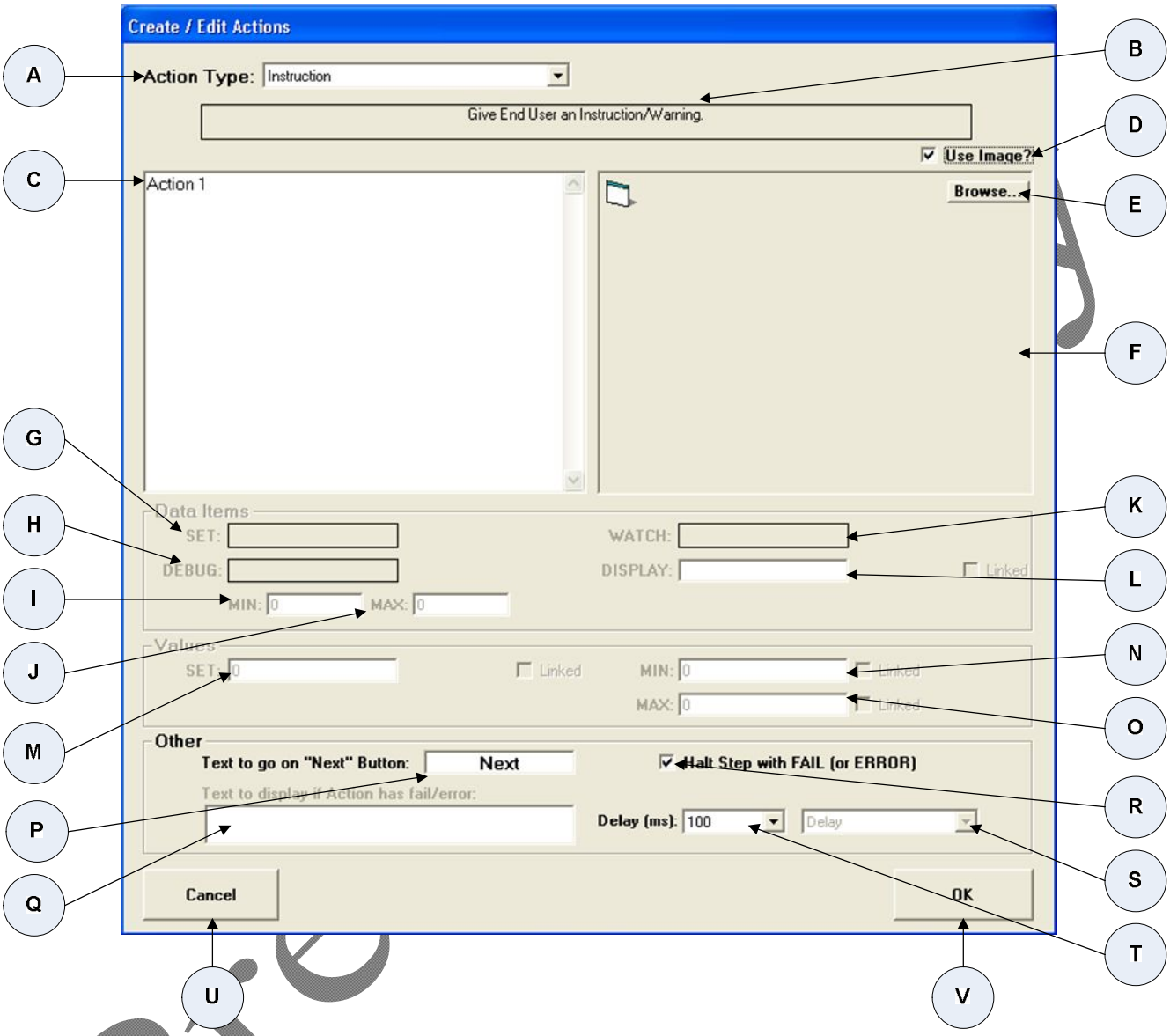
4.4 Create / Edit Actions



A) Action Type selects the type of Action to take.
B) A brief description of what the currently selected Action does.
C) Enter the text for the Action in this text box. This will be displayed to the end user when running Tuner.
D) Clicking this check box will enable the use of an image for this Action.
E) Clicking on the browse button will bring up the browse window where the image for the Action can be selected.
    a. To fit properly, images up to 336w x 225h pixels in size may be used.
F) Once an image has been selected, it will be displayed in this window
G) Set: This box is enabled for the Actions that need to set a value upon completion. Double clicking this box will bring up the Multi-View window where an EEPROM or Timer may be selected. Only EEPROM and Timers may be selected for this box.

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H) Debug: This box is enabled for the Actions that allow a Data Item to be debugged. Double clicking this box will bring up the Multi-View window where the Data Item to be debugged may be selected. Only Data Items may be selected for this box.
I) Debug Min: This box is enabled for the Actions that allow a Data Item to be debugged. Enter the minimum value that you will allow the end user to be able to debug the Data Item in the debug box to. This box can not be linked to a Data Item, a number has to be entered and be less than then the debug max value.
J) Debug Max: This box is enabled for the Actions that allow a Data Item to be debugged. Enter the maximum value that you will allow the end user to be able to debug the Data Item in the debug box to. This box may not be linked to a Data Item, a number has to be entered and be greater than then the debug min value.
K) Watch: This box is enabled for the Actions that are using a Data Item value for display, capture or comparison. Double clicking this box will bring up the Multi-View window where the Data Item to be watched may be selected. Only Data Items may be selected for this box.
L) Display: This box is enabled for the Actions that are using a Data Item value for display or comparison. Either a number may be entered or click the linked box to link it to a Data Item. If it is linked double clicking this box will bring up the Multi-View window where the Data Item may be selected.
M) Set: This box is enabled for the Actions that are using a Data Item value for set (Blind Action). Either a number may be entered or click the linked box to link it to a Data Item. If it is linked double clicking this box will bring up the Multi-View window where the Data Item may be selected.
N) Min: This box is enabled for the Actions that allow a Data Item to be set, but must fall within a given range (Min and Max). Either a number may be entered or click the linked box to link it to a Data Item. If it is linked double clicking this box will bring up the Multi-View window where the Data Item may be selected.
O) Max: This box is enabled for the Actions that allow a Data Item to be set, but must fall within a given range (Min and Max). Either a number may be entered or click the linked box to link it to a Data Item. If it is linked double clicking this box will bring up the Multi-View window where the Data Item may be selected.
P) Enter in the text for what the "Next" button will display in Tuner (Ex: OK, Ready, Set, Done, etc..).
Q) If the Action fails this text will be displayed to the end user in Tuner.
R) Clicking this check box will cause the Action in Tuner to be stopped if the Action fails. The user will have to either quit the Tuner application or restart the Process.
S) Delay Type: This box determines what type of delay this Action will have.
    a. Delay: The "Next" button will not be enabled until after the delay time has run out.
    b. Delay Then Check: When doing a comparison Action the Tuner will pause for the delay time and then continue to run the check until the next button is clicked The next button will be enabled after the delay time has run out
    c. Delay While Checking: When doing a comparison Action the Tuner will continue to run the check until the next button is clicked The next button will be enabled after the delay time has run out.
T) Delay: This is how long the delay will be. Displayed in milliseconds.
U) Cancel Button – Pressing this button at any time will exit the "Create / Edit Actions" window and any changes made since the window was opened will be lost
V) OK Button - Pressing this button at any time will exit the "Create / Edit Actions" window and store any changes made since the window was opened. To permanently save the changes the save button will need to be pressed.

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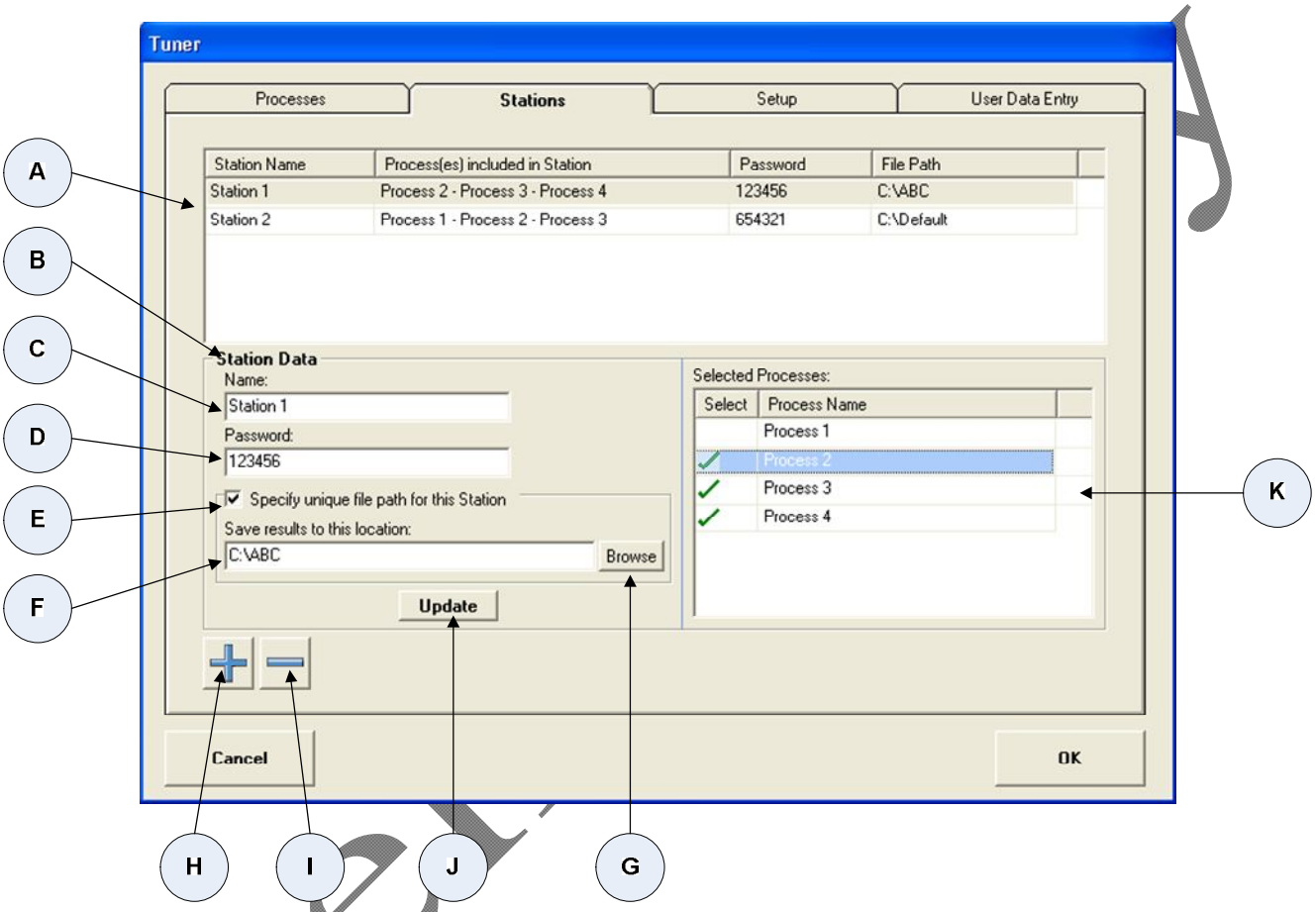
4.5 Station Files Tab

General Use: Station Files may be used to authorize or prevent certain Processes from being executed on a particular work station (P.C.).



A) This window shows all of the Stations that have been created. Clicking on a line highlights it so it can be deleted and brings all the information up to be edited
B) The Station Data displays all the information about the currently selected station
C) Name: This is the name of the current station
D) Password: This is the password required to execute the Processes included for this Station.
   a. This may be the same or different than the default Tuner password.
   b. This may be used to limit who can execute a specific Station file
E) Clicking the "Specify unique file path for this Station" will enable box "F" so that a specific location for this station may be used. If this box is not checked the default location will be used (defined in the Setup tab)
F) This is the folder location for where the Tuner results file will be stored.
G) Clicking this button will bring up the browse-for-folder window. By clicking on a folder in this window, it will fill in the "Save results to this location."
H) Pressing this button will create a new Station.
I) Pressing this button will delete the currently selected Station.
J) Pressing this button will update the currently selected Station with all the information currently entered

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K) This box displays all the currently defined Processes. By double clicking any of the Processes it will add put a check mark ✓ next to the Process and include it in the Station or if it was already included, it will be excluded.

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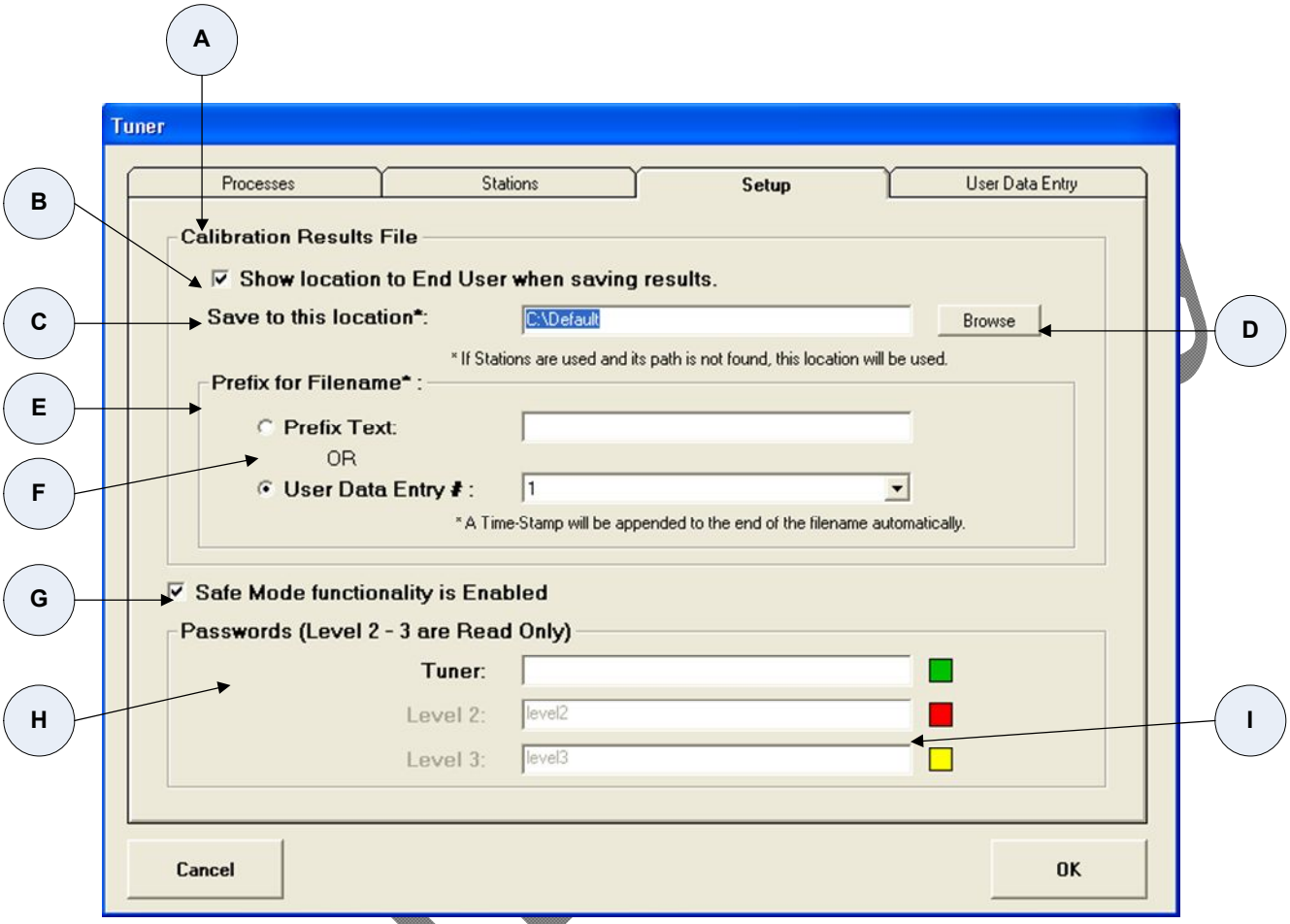
4.6 Setup Tab



A) Tuner Results File
   c. After Tuner is done executing, it creates a file with information about all the processes that were just executed.
   d. This section allows the user to setup where the file is stored and what type of prefix to give it.

B) This checkbox determines if the file location should be displayed to the end user or not. By checking the box, the location will be displayed.

C) This sets the location the file will be saved to. It can be either a local or network location.

D) Clicking this button will bring up the browse-for-folder window. By clicking on a folder in this window, it will fill in the "Save to this location".

E) Each file will be stored with a time stamp appended to the name. This field gives the user an option to select what the beginning of the file name will be.

F) There is an option button to select between two different options
   e. Prefix Text
      i. This text will always be the first part of the file name
      ii. Ex: Big_Red_Truck and end user executed Tuner on October 30, 2009 at 9:16:01am, would yield the following file: Big_Red_Truck_TunerResults_Oct 30 2009_091601 .txt.
   f. User Data Entry #
      i. This will use what the end user entered for one of the data entry items as the first part of the file name.

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ii. Ex: If the first data entry was the truck serial number. The end user entered "34516", and executed Tuner on October 30, 2009 at 9:16:01am, would yield the following file: 34516_TunerResults_Oct 30 2009_091601.txt.

G) By checking the "Safe Mode Functionally is enabled" check box while running Tuner the end user can press the "Space Bar" and the system will go into safe mode. By unchecking this box the there will be no way for the end user in Tuner to enter safe mode.

H) Default Tuner Password (2 uses):
   a. Station files are used, but Station file passwords are not defined.
   b. If no Station files are used, but security is still required for execution, use a Default Tuner Password.

I) The Level 2 and Level 3 passwords are listed here for reference only.

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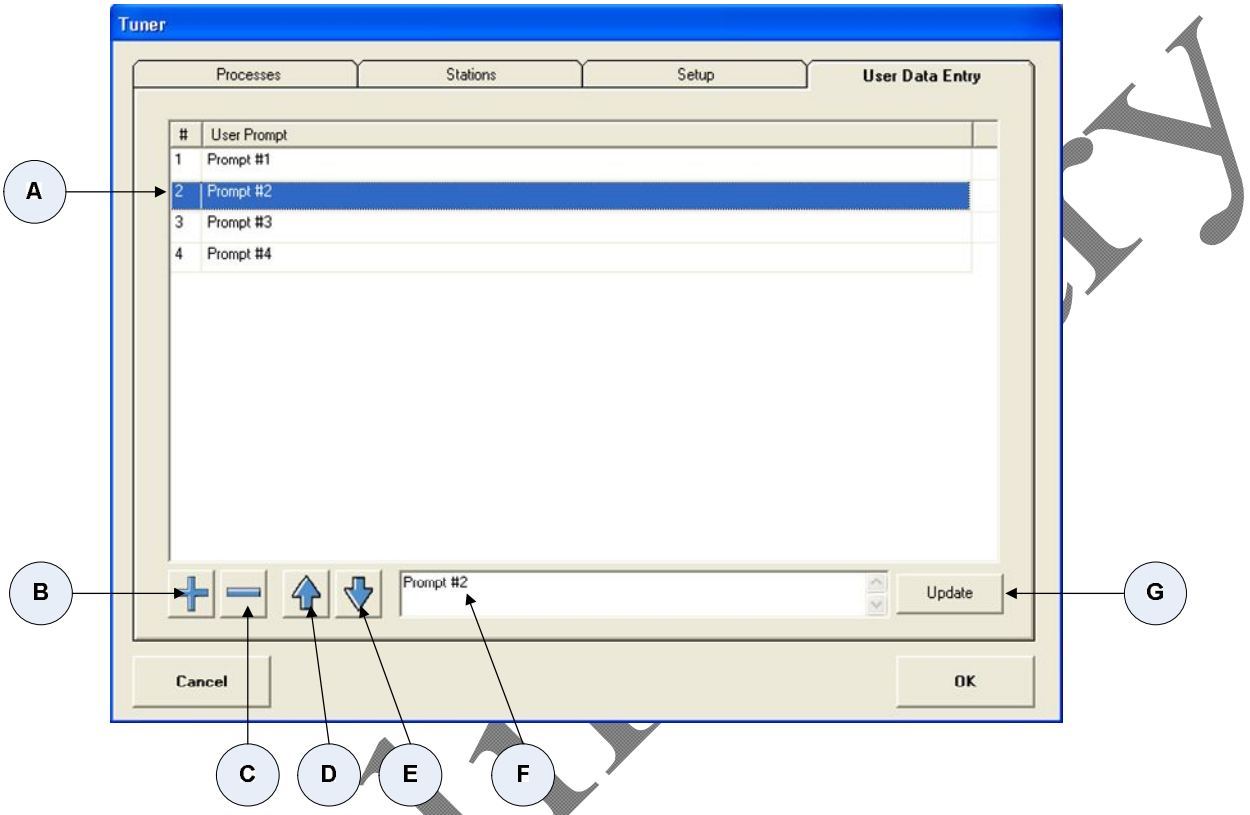
4.7 User Data Entry Tab

This screen is where the Tuner end user prompts are created. There is a max of 10 prompts. Every time Tuner connects to the Mater module, if prompts have been created, the end user will have to enter in text for each prompt. This data will be stored in the Tuner results file.



A) This box lists the current Prompts text and Order
   a. Double clicking a prompt in this window will move the focus to the text box "F" where text for the prompt may be edited
B) Pressing this button will add another prompt to the window.
C) Pressing this button will delete the currently selected prompt
D) Pressing this button will move the currently selected prompt up 1 spot
E) Pressing this button will move the currently selected prompt down 1 spot.
F) This is the text box where the text for the selected prompt may be created/edited
G) Pressing this button will update the selected prompt with text that is currently listed in the text box "F".
   a. Using the Enter Key also updates the selected prompt.

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